UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *03/01/2004*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1.   The drawings are objected to because reference character "204" in FIG. 9 should

be -- 203 --.

2.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they do not include the following reference sign(s) mentioned in the

description:

- Page 11 Paragraph [042] line 2: "step 310"

- Page 14 Paragraph [052] line 2: "S_3^1 (513)"

- Page 23 Paragraph [083] line 3: "a(1005)"

- Page 24 Paragraph [085] lines 2-3: "A new ROI record (1007)"

- Page 24 Paragraph [087] line 3: "last element (1008)"

3.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they include the following reference character(s) not mentioned in the

description: 1007 in FIG. 10F.

4.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4)

because reference character "105" in FIG. 1 and FIG. 3 has been used to designate

both "Local interface" and "Next i, j".

5.   Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in

reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. Each drawing sheet

submitted after the filing date of an application must be labeled in the top margin as

either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the

changes are not accepted by the examiner, the applicant will be notified and informed of

any required corrective action in the next Office action. The objection to the drawings

will not be held in abeyance.

Specification

6.   The disclosure is objected to because of the following informalities:

- Page 3 Paragraph [015]: "FIGs 10A-C" should be -- FIGs 10A-G --

- Page 5 Paragraph [021] lines 1-2: "the method for recognizing road signs
  in a digital image 108" should be -- the method the method for recognizing
  road signs in a digital image 106 --

- Page 5 Paragraph [022] line 1: "the method for recognizing road signs in a
  digital image 109" should be -- the method the method for recognizing
  road signs in a digital image 106 --

- Page 6 Paragraph [025] line 4: "the method for recognizing road signs in a
  digital image 110" should be -- the method the method for recognizing
  road signs in a digital image 106 --

- Page 6 Paragraph [026] line 7: "the method for recognizing road signs in a
  digital image 111" should be -- the method the method for recognizing
  road signs in a digital image 106 --

- Page 6 Paragraph [026] lines 2-3: "the method for recognizing road signs in a digital image 112" should be -- the method the method for recognizing road signs in a digital image 106 --

- Page 7 Paragraph [027] lines 1-2: "the method for recognizing road signs in a digital image 113" should be -- the method the method for recognizing road signs in a digital image 106 --

- Page 7 Paragraph [027] lines 2-3: "the method for recognizing road signs in a digital image 114" should be -- the method the method for recognizing road signs in a digital image 106 --

- Page 11 Paragraph [042] line 4: "then processing stops at step 309" should be -- then processing stops at step 210 --

- Page 14 Paragraph [050] lines 3-4: "$S_1 = E(x_0{}^1, x_0{}^1; 1, n)$" should be -- "$S_1 = E(x_0{}^1, x_0{}^2; 1, n)$" --

- Page 14 Paragraph [052] line 3: "$x_1{}^1$ (515) and right boundary $x_1{}^2$ (516)" should be -- $x_0{}^1$ (515) and right boundary $x_0{}^2$ (516) --

- Page 16 Paragraph [056] line 1: "step 604" should be -- step 605 --

- Page 16 Paragraph [058] line 1: "step 604" should be -- step 606 --

- Page 16 Paragraph [058] line 2: "step 605" should be -- step 608 --

- Page 16 Paragraph [058] line 3: "step 607" should be -- step 606 --

- Page 16 Paragraph [059] line 1: "step 608" should be -- step 609 --

- Page 16 Paragraph [059] line 3: "step 609" should be -- step 610 --

- Page 17 Paragraph [060] line 1: "step 604" first and second occurrence should be -- step 607 --

- Page 17 Paragraph [060] line 3: "step 604" should be -- step 607 --

- Page 17 Paragraph [060] line 7: "step 610" should be -- step 612 --

- Page 19 Paragraph [068] line 4: "step 708" should be -- step 709 --

- Page 19 Paragraph [068] line 5: "step 709" should be -- step 708 --

- Page 26 Paragraph [095] line 1: "and OCR algorithm is used" should -- an Optical Character Recognition (OCR) is used --

Appropriate correction is required.

7.   The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

- Claim 6 lines 1-2: "the first threshold value at a location $X(i,j)$ is the average of a square submatrix centered at $X(i,j)$."

- Claim 11 lines 2 and 4: "a validating column vector", and "a validating row vector".

Claim Objections

8.   Claims 8, 15, 17 and 18 are objected to because of the following informalities:

- Claim 8 lines 4-5: "The method of claim 1, where the matrix contains only binary values." should be deleted.

- Claim 15 line 2: "the matrix for a element" should be -- the matrix for an

  element --

- Claim 17 line 5: "logic correlate at least one region" should be -- logic

  configured to correlate at least one region --

- Claim 18 line 2: "the method" should be -- the system --

Appropriate correction is required.

Claim Rejections - 35 USC § 101

9.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10.   Claim 17 is rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. The claim limitation "A computer readable

medium having a computer program" is intended to cover electromagnetic and infrared

propagation mediums mentioned on page 6 Paragraph [026] lines 8-9 in the

specification. Since electromagnetic and infrared propagation mediums are not a

tangible, physical article or object to constitute a manufacture, and it's not a machine,

process or composition of matter, the previously mentioned claim does not fall within a

statutory category of invention. The examiner suggests replacing the sentence "The

computer- readable medium can be, for example but not limited to, an electronic,

magnetic, optical, electromagnetic, infrared, or semiconductor system, system, device,

or propagation medium." in Paragraph [026] lines 7-9 in the specification with -- The

computer-readable medium can be, for example but not limited to, an electronic,

magnetic, optical or semiconductor system or device. --

Claim Rejections - 35 USC § 112

11.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

12.   Claims 2, 3, 5, 6, 9, 12, and 13-16 are rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention.

- Claim 2 recites the limitations "the matrix' in line 4" and "the reference

  matrix" in line 6. There is insufficient antecedent basis for this limitation in

  the claim. However, it appears to be -- the at least one matrix – and – the

  template matrix – respectively, and has been treated as such. Affirmation

  of this is required by the appropriate amendment.

- Claim 3 recites the limitations "the performing step" and "the matrix" in

  lines 1 and 2 respectively. There is insufficient antecedent basis for these

  limitations in the claim. However, it appears to be dependant upon claim 2,

  and "the matrix" appears to be -- the at least one matrix --, and has been

  treated as such. Affirmation of this is required by the appropriate

  amendment.

- Claim 5 recites the limitation "the matrix" in line 2. There is insufficient

  antecedent basis for this limitation in the claim.

- Claim 6 is dependant upon claim 5.

- Claim 9 recited the limitation "the matrix" in line 1. There is insufficient antecedent basis for this limitation in the claim. However, it appears to be -- the template matrix -- and has been treated as such. Affirmation of this is required by the appropriate amendment.

- Claim 10 recites the limitation "the matrix" in line 1. There is insufficient antecedent basis for this limitation in the claim.

- Claim 12 recites the limitation "the submatrix" in line 2. There is insufficient antecedent basis for this limitation in the claim. However, it appears to be -- the at least one submatrix -- and has been treated as such. Affirmation of this is required by the appropriate amendment.

- Claim 13 recites the limitation "the submatrix" in line 3. There is insufficient antecedent basis for this limitation in the claim. However, it appears to be -- the at least one submatrix -- and dependant upon claim 2. It has been treated as such. Affirmation of this is required by the appropriate amendment.

- Claim 14 recites the same limitations of claim 13 and has been considered a duplicate. It is redundant and should be deleted.

- Claim 15 recites the limitations "the extracting step" and "the matrix" in lines 1 and 2 respectively. There is insufficient antecedent basis for these limitations in the claim. However, it appears to be dependant upon claim 2

and to be -- the at least one matrix -- and has been treated as such.

Affirmation of this is required by the appropriate amendment.

- Claim 16 recites the limitation "the extracting step" in line 1. There is

insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

13.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14.   Claims 1, 2, 7, 13, 14, 17 and 18 are rejected under 35 U.S.C. 102(e) as being

anticipated by Berube et al. (U.S. 7,130,454 B1).

Re claim 1: Berube et al. disclose a method for recognizing a road sign in a

digital color image, where the road sign is associated with a shape template and

at least one color criterion (Col. 2 lines 44-47 and Col. 7 lines 33-34), the method

comprising: capturing a digital color image (image acquisition stage 22, Col. 7

lines 45-49); correlating at least one region of interest within the digital color

image with a template matrix (Col 16 lines 3-7), where the template matrix

(Reference Set) is specific to a reference sign (Col. 15 lines 61-67); and

recognizing the image as containing the reference sign, responsive to the

correlating step (Col.15 lines 21-26).

Re claim 2, as understood: Berube et al. disclose performing color segmentation

on the digital color image to produce at least one matrix (Col. 9 lines 30-33 and

44-46); extracting at least one region of interest from the matrix (area of pixels) to

produce at least one submatrix (blob) containing at least one potential road sign

(Col. 9 lines 31-33); correlating the at least one submatrix with a template matrix

to produce a correlation coefficient, where the reference matrix is specific to a

reference sign (Col. 16 lines 7-18); and recognizing the image as containing the

reference sign, based upon a comparison of the correlation coefficient and a

correlation threshold value (Col. 16 lines 20-25).

Re claim 7: Berube et al. disclose a second color criterion (different image

reference sets), where the first criterion is used in dim light conditions and the

second criterion is used in bright light conditions (Col. 15 lines 4-11).

Re claims 13 and 14: Berube et al. disclose calculating a two-dimensional

correlation coefficient which measures the correlation between the submatrix and

a two-dimensional matrix (Col. 16 lines 7-18).

Re claim 17: Berube et al. disclose a computer readable medium having a computer program for recognizing a road sign in a digital color image, where the road sign is associated with a shape template and at least one color criterion (Col. 2 lines 44-47 and Col. 7 lines 33-36), comprising: logic configured to capture a digital color image (Col. 3 lines 10-12 and image acquisition stage **22**, Col. 7 lines 45-49); logic correlate at least one region of interest within the digital color image with a template matrix (Col 16 lines 3-7), where the template matrix is specific to a reference sign (Col. 15 lines 61-67); and logic configured to recognize the image as containing the reference sign, responsive to the correlation logic (Col.15 lines 21-26).

Re claim 18: Berube et al. disclose a system for recognizing a road sign in a digital color image, where the toad sign is associated with a shape template and at least one color criterion (Col. 2 lines 44-47 and Col. 7 lines 33-34), the method comprising: means for capturing a digital color image (Col. 3 lines 10-12); means for correlating at least one region of interest within the digital color image with a template matrix, where the reference matrix is specific to a reference sign (Col. 15 lines 28-29 and 47-53); and means for recognizing the image as containing the reference sign, responsive to the correlation means (Col.15 lines 21-26). Claim 17 invokes 35 U.S.C. 112 sixth paragraph.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claim 3, as understood is rejected under 35 U.S.C. 103(a) as being unpatentable over Berube et al. in view of Laumeyer et al. (U.S. 6,453,056 B2). The teachings of Berube et al. have been discussed above.

However, Berube et al. fails to disclose setting each element of the matrix to a first value if the corresponding pixel position in the digital color image matches any of the at least one color criterion associated with the road sign.

Laumeyer et al. teaches setting each element of the matrix to a first value if the corresponding pixel position in the digital color image matches any of the at least one color criterion associated with the road sign (Col. 11 lines 27-30 and Col. 12 lines 26-30).

Therefore, in view of Laumeyer et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Berube et al.'s system by including the method step of setting each element of the matrix to a first value if the corresponding pixel position in the digital color image matches any of the at least one color criterion associated with the road sign in order to create a graphic-based search engine in addition of the road sign detection.

17.   Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Berube et al. in view of Lin et al. (U.S. 7,039,229 B2). The teachings of Berube et al.

have been discussed above.

However, Berube et al. fails to disclose a first/second color selected from R, G, B

being greater than a first/thrid threshold value; and a saturation value for the

first/second color being greater than a second/fouth threshold value where the

saturation value is calculated using a hue, saturation and intensity model.

Lin et al. teaches a first/second color selected from R, G, B being greater than a

first/third threshold value (Col. 4 lines 57-61); and a saturation value for the first/second

color being greater than a second/fourth threshold value is calculated using a hue,

saturation and intensity model (Col. 24 lines 5-7) as recited in claims 4 and 8

respectively.·

Therefore, in view of Lin et al., it would have been obvious to one of ordinary skill

in the art at the time the invention was made to modify Berube et al.'s system by

including a first and second color selected from R, G, B being greater than a first and

third threshold value and a saturation value for the first and second color being greater

than a second and fourth threshold value is calculated using a hue, saturation and

intensity model in order to more effectively characterize and compare the colors in the

image.

18.   Claims 5 and 6 rejected under 35 U.S.C. 103(a) as being unpatentable over

Berube et el. as modified by Lin et al. as applied to claim 4 above, and further in view of

Nakajima et al. (U.S. 6,285,778 B1). The teachings of Berube et al. modified by Lin et al. have been discussed above.

However, Berube et al. modified by Lin et al. fails to disclose the at least one color criterion is locally adaptive such that the first threshold value varies at each location within the matrix and the first threshold value at a location $X(i,j)$ is the average of a square submatrix centered at $X(i,j)$.

Nakajima et al. teaches the at least one color criterion is locally adaptive such that the first threshold value varies at each location within the matrix and the first threshold value at a location $X(i,j)$ is the average of a square submatrix (when $m = n$) centered at $X(i,j)$ (Col. 5 lines 13-20) as recited in claims 5 and 6 respectively.

Therefore, in view of Nakajima et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Berube et al.'s system as modified by Lin et al. by including the at least one color criterion is locally adaptive such that the first threshold value varies at each location within the matrix and the first threshold value at a location $X(i,j)$ is the average of a square submatrix centered at $X(i,j)$ in order to more efficiently detect and measure obstacles size and position.

19.   Claim 9, as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Berube et al. in view of Michael et al. (U.S. 6,539,107 B1). The teachings of Berube et al. have been discussed above.

However, Berube et al. fails to disclose the matrix contains only binary values.

Michael et al. teaches the matrix (Fig. 7) contains only binary values (Col. 7 lines 54-56).

Therefore, in view of Michael et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Berube et al.'s system by including the matrix which contains only binary values in order to save processing time.

20.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berube et al. in view of Kim et al. (U.S. 2001/0040982 A1). The teachings of Berube et al. have been discussed above.

However, Berube et al. fails to disclose recursively removing any invalid row and any invalid column from the matrix, where an invalid row contains less than a first threshold value of a binary value and an invalid column contains less than a second threshold value of the binary value.

Kim et al. teaches recursively removing any invalid row and any invalid column from the matrix (RECT[3]), where an invalid row contains less than a first threshold value of a binary value and an invalid column contains less than a second threshold value of the binary value (Paragraph [0050]).

Therefore, in view of Kim et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Berube et al.'s system by including recursively removing any invalid row and any invalid column from the matrix, where an invalid row contains less than a first threshold value of a binary value and an

invalid column contains less than a second threshold value of the binary value in order

to optimize the minimum area to become the shape of the object.

21.   Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berube

et al. in view of Gersten (U.S. 6,928,193 B2). The teachings of Berube et al. have been

discussed above.

However, Berube et al. fails to disclose creating a validating column vector

corresponding to all columns in the submatrix; creating a validating row vector

corresponding to all rows in the submatrix; correlating the validating column vector with

a template column vector; and correlating the validating row vector with a template row

vector.

Gersten teaches creating a validating column vector (result vector)

corresponding to all columns in the submatrix (image); creating a validating row vector

corresponding to all rows in the submatrix; correlating the validating column vector (next

FFT vector) with a template column vector; and correlating the validating row vector with

a template row vector (Col. 3 lines 21-26, 35-37 and 45-47).

Therefore, in view of Gersten, it would have been obvious to one of ordinary skill

in the art at the time the invention was made to modify Berube et al.'s system by

including creating a validating column vector corresponding to all columns in the

submatrix; creating a validating row vector corresponding to all rows in the submatrix;

correlating the validating column vector with a template column vector; and correlating

the validating row vector with a template row vector in order to produce a corrected

image for further processing.

22.   Claim 12, as understood, is rejected under 35 U.S.C. 103(a) as being

unpatentable over Berube et al. in view of Oosawa (U.S. 2001/0048757 A1). The

teachings of Berube et al. have been discussed above.

However, Berube et al. fails to disclose normalizing the submatrix, such that each

element in the normalized submatrix is the weighted sum of the element's four

neighboring elements.

Oosawa teaches normalizing the submatrix (P2), such that each element in the

normalized submatrix is the weighted sum of the element's four neighboring elements

(Paragraph [0124] lines 1-8 and 31-32, and Paragraph [0125] lines 1-6).

Therefore, in view of Oosawa, it would have been obvious to one of ordinary skill

in the art at the time the invention was made to modify Berube et al.'s system by

including normalizing the submatrix, such that each element in the normalized

submatrix is the weighted sum of the element's four neighboring elements in order to

perform local position matching processing within the original image.

23.   Claims 15 and 16, as understood are rejected under 35 U.S.C. 103(a) as being

unpatentable over Berube et al. in view of Xia et al. (U.S. 2001/0036300 A1). The

teachings of Berube et al. have been discussed above.

However, Berube et al. fails to disclose scanning the matrix for a element with value 1 at position E(x,y); and performing a depth-first-search to find all elements with value 1 that are connected to E(x,y); and setting the element at position E(x,y) to a unique identifier; and setting the value of the connected elements to the unique identifier.

Xia et al. teaches scanning the matrix for a element with value 1 at position E(x,y); and performing a depth-first-search to find all elements with value 1 that are connected to E(x,y); and setting the element at position E(x,y) to a unique identifier ("0"); and setting the value of the connected elements to the unique identifier (Fig. 2 and Paragraphs [0055]-[0069]) as recited in claims 15 and 16 respectively.

Therefore, in view of Xia et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Berube et al.'s system by including scanning the matrix for a element with value 1 at position E(x,y); and performing a depth-first-search to find all elements with value 1 that are connected to E(x,y); and setting the element at position E(x,y) to a unique identifier; and setting the value of the connected elements to the unique identifier in order to reproduce a better image that produces a better response with respect a predetermined threshold.

Conclusion

24.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Javidi et al. disclose a method and system for image processing

for automatic road sign recognition, and Janssen et al. disclose a device and method for recognizing traffic signs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose M. Torres whose telephone number is 571-270-1356. The examiner can normally be reached on Monday thru Friday: 8:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on 571-272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMT
11/08/2006

JONG SUK LEE
SUPERVISORY PATENT EXAMINER